

Safe Drinking Water Program: Disinfection Byproducts Rule (DBPR)

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OPH – Central Office



Presentation Outline

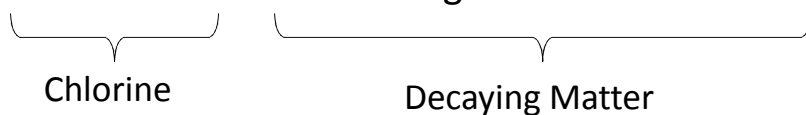
- DBP Overview
- Reporting
- Regulations
- Stage 1
- Stage 2

Disinfection Byproducts

Overview

- Causes

Disinfectants + Natural Organic Matter in Water



- Effects

- Cancer

- Adverse reproductive or developmental effects

Reporting

Overview

Reporting Submission:	To Whom:
Chlorine/Chloramines	District Office
Chlorine Dioxide & Chlorite	District Office
TTHM & HAA5	Central Office - BR
Bromate	District Office
DBP Precursors – Total Organic Carbon	District Office
Monitoring Plan or Treatment Changes	District Office

DBPR Regulations

Governing TTHM and HAA5

- Stage 1
CFR §141.130 - 141.135 & LAC 51:XII.13
- Stage 2
CFR §141.620 - 141.621

Stage 1

Disinfection Byproducts Rule (DBPR)

Stage 1 DBPR

TTHM and HAA5 Standards

Apply to:

A. Community Water Systems (CWS)

1. At least 15 service connections used year-round

OR

2. Serve at least 25 year-round residents

B. Non-Transient Non-Community Water Systems

1. All systems not CWS

AND

2. Serve at least 25 of the same people for at least 6 months

Stage 1 DBPR

Maximum Contaminant Levels (MCL)

TTHM: 80 µg/L (or 0.080 mg/L)

HAA5: 60 µg/L (or 0.060 mg/L)

Stage 1 DBPR

Monitoring: Initial Sampling Frequency

Groundwater		Surface Water	
Plant Size	Sampling Frequency (per plant)	Plant Size	Sampling Frequency (per plant)
< 10,000*	1 sample per year	< 500*	1 sample per year
≥ 10,000	1 sample per quarter	500 - 9,999	1 sample per quarter
		≥ 10,000	4 samples per quarter

* Must be collected during month of warmest water temperature

Stage 1 DBPR

Reduced Monitoring Qualifications

	Plant Size	Contaminant Level Monitoring Criterion*
Groundwater	< 10,000	TTHM AA ≤ 40 µg/L & HAA5 AA ≤ 30 µg/L for 2 consecutive years OR TTHM AA ≤ 20 µg/L & HAA5 AA ≤ 15 µg/L for 1 year
	≥ 10,000	TTHM AA ≤ 40 µg/L & HAA5 AA ≤ 30 µg/L
Surface Water	500 – 9,999‡	TTHM AA ≤ 40 µg/L & HAA5 AA ≤ 30 µg/L (with a TOC RAA ≤ 4.0 mg/L for 4 consecutive quarters)
	≥ 10,000	

‡ Not available for systems with fewer than 500

* After at least 1 year

Stage 1 DBPR Monitoring Frequency

	Plant Size	Reduced Monitoring*	Increased Monitoring
Ground Water	< 10,000	1 every 3 years	-----
	≥ 10,000	1 per year	1 per quarter
Surface Water	< 500	-----	1 per quarter
	500 – 9,999	1 per year	-----
	≥ 10,000	1 per quarter	-----

* On a per plant basis

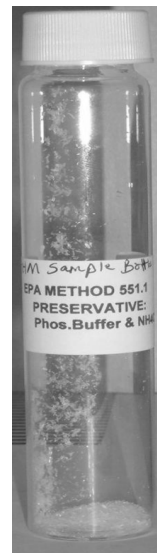
Stage 1 DBPR Monitoring: Location

Collect at the point where the water has been in the distribution system the longest (maximum residence time)

Stage 1 DBPR

Sampling Protocol: TTHM

1. Clear glass container with Teflon-lined cap
2. **Cannot** contain air
3. **Must** contain a preservative



Stage 1 DBPR

Sampling Protocol: HAA5



1. Amber glass container with Teflon-lined cap
2. **Must** contain ammonium chloride preservative

Stage 1 DBPR Sample Testing

All sample testing must be performed by an LDHH
certified lab:

<http://www.dhh.louisiana.gov/offices/page.asp?id=250&detail=8332>

Stage 1 DBPR Lab Reports

All lab reports must include:

1. System's name and PWS ID (LA1009999)
2. Sample collection date
3. Sample location(s)
4. Analysis method
5. Contaminant results
6. Quality control (QC) data
7. Signature of lab manager

**Stage 1 Disinfection By-Products (DBP) Compliance
Result Submission Form**

PWS ID: _____ PWS Name: _____

Sample ID	Point of Collection (POC) ID (if known)	Point of Collection (POC) Description (Sample Location)	Sample Date	Lab
<i>Example</i> 07777	<i>DBP1</i>	<i>8737 Warrington Blvd</i>	<i>10/28/2008</i>	<i>dnr-Lab</i>

An example is provided as a guide for entering the required data.

Submitter: _____ Date: _____ Phone: _____
Please Print Legibly

Company/PWS: _____ Email: _____

* Note: Stage 1 DBP sample results will not be accepted for compliance without this form. Stage 2 Initial Distribution System Evaluation (IDSE) results are not required to be submitted to LDHH - Central Office. Systems subject to IDSE Monitoring are required to complete an IDSE Report after monitoring is complete. Stage 2 IDSE results should be maintained by the Public Water System and should not be submitted to LDHH - Central Office. Stage 2 IDSE results are required to be reported in the Consumer Confidence Report (CCR).

Mail copies of this form and the Lab Report to:
DHH - OPH - CENTER FOR ENVIRONMENTAL HEALTH & ENGINEERING SERVICES
P.O. BOX 4489 • BATON ROUGE, LOUISIANA 70821-4489
PHONE: 225-345-1899 • FAX: 225-345-7350 • ocph@dhs.louisiana.gov
"AN EQUAL OPPORTUNITY EMPLOYER"

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Stage 1 DBPR

Calculating Compliance: 1 Site

Date	Point of Collection	TTHM	TTHM RAA	HAA5	HAA5 RAA	Quarter
12/7/07	Post Office	88.33		49.3		4Q07
3/13/08	Post Office	70.45		62.4		1Q08
5/28/08	Post Office	69.4		50.0		2Q08
8/28/08	Post Office	77.36		76.2		3Q08
11/21/08	Post Office	85.81		81.2		4Q08
2/24/09	Post Office	93.05		112.0		1Q09

Sample Results from Lab Report

Stage 1 DBPR

Calculating Compliance: 1 Site

Calculating the Running Annual Average (RAA)

$$\text{Running Annual Average} = \frac{\text{Sum of 4 Consecutive Quarters}}{\text{Number of Quarters}}$$

Stage 1 DBPR

Calculating Compliance: 1 Site

Date	Point of Collection	TTHM	TTHM RAA	HAA5	HAA5 RAA	Quarter
12/7/07	Post Office	88.33	88.33*	49.3	49.3	4Q07
3/13/08	Post Office	70.45	79.39	62.4	55.85	1Q08
5/28/08	Post Office	69.4	76.06	50.0	53.9	2Q08
8/28/08	Post Office	77.36	76.39	76.2	59.48	3Q08
11/21/08	Post Office	85.81	75.76	81.2	67.45*	4Q08
2/24/09	Post Office	93.05	81.41*	112.0	79.85*	1Q09

Used to determine compliance

Stage 1 DBPR

Calculating Compliance: 2 or more Sites

Sample Date	Point of Collection	TTHM	Quart Avg	TTHM RAA	HAA5	HAA5 RAA	HAA5 RAA
12/15/07	Post Office	47.2			39.9		
4Q07	Beach	25			2.03		
	Fire Station	15			16.4		
3/13/08	Post Office	54.3			42.6		
1Q08	Beach	32.8			6.4		
	Fire Station	12			19.08		
6/18/08	Post Office	48			40.13		
2Q08	Beach	34.7			1.2		
	Fire Station	7			21.9		
9/12/08	Post Office	53.69			36.7		
3Q08	Beach	28.36			3.9		
	Fire Station	9			18		

Sample Results from Lab Report

Stage 1 DBPR

Calculating Compliance: 2 or more Sites

Calculating Quarter Average

$$\text{Quarter Average} = \frac{\text{Sum of all results (TTHM or HAA5) in a sampling period}}{\text{Number of Points of Collection}}$$

Stage 1 DBPR

Calculating Compliance: 2 or more Sites

Sample Date	Point of Collection	TTHM	Quart Avg	TTHM RAA	HAA5	HAA5 RAA	HAA5 RAA
12/15/07	Post Office	47.2			39.9		
4Q07	Beach	25			2.03		
	Fire Station	15	29.07		16.4	19.44	
3/13/08	Post Office	54.3			42.6		
1Q08	Beach	32.8			6.4		
	Fire Station	12	30.03		19.08	22.69	
6/18/08	Post Office	48			40.13		
2Q08	Beach	34.7			1.2		
	Fire Station	7	29.9		21.9	21.08	
9/12/08	Post Office	53.69			36.7		
3Q08	Beach	28.36			3.9		
	Fire Station	9	30.35		18	19.53	

Calculate the average for each quarter

Stage 1 DBPR

Calculating Compliance: 2 or more Sites

Sample Date	Point of Collection	TTHM	Quart Avg	TTHM RAA	HAA5	HAA5 RAA	HAA5 RAA
12/15/07	Post Office	47.2			39.9		
4Q07	Beach	25			2.03		
	Fire Station	15	29.07	29.07	16.4	19.44	19.44
3/13/08	Post Office	54.3			42.6		
1Q08	Beach	32.8			6.4		
	Fire Station	12	30.03	29.55	19.08	22.69	21.07
6/18/08	Post Office	48			40.13		
2Q08	Beach	34.7			1.2		
	Fire Station	7	29.9	29.67	21.9	21.08	21.07
9/12/08	Post Office	53.69			36.7		
3Q08	Beach	28.36			3.9		
	Fire Station	9	30.35	29.84	18	19.53	20.69

Calculate the average for each quarter

Stage 1 DBPR

Reporting Results

Quarterly Reporting Deadlines	
Reporting Quarter	Report Due Date
1 st Quarter	April 10
2 nd Quarter	July 10
3 rd Quarter	October 10
4 th Quarter	January 10

Annual Reporting Deadline
November 10

Mail results to:

Flozelle C. Roberts, E.I.
DHH/OPH/Center for Environmental Health Services
P. O. Box 4489
Baton Rouge, LA 70821

Stage 1 DBPR Notice of Violation (NOV)

Issued when:

1. System monitors
 - DBP MCL RAA exceeded
 - System fails to report results
2. System did not monitor
 - Failure to monitor & report (M & R)

Stage 1 DBPR Public Notification: Methods

Community Systems

1. Postal Mail

AND

2. Newspaper Posting

Non-Transient Non-Community Systems

1. Posting

AND

2. Newsletter or Email to Employees

Stage 1 DBPR Public Notice Proof

Must provide proof of notice
by submitting:

Copies of each notice

AND

Public notice certification
form with dates of each
notice

PUBLIC NOTICE CERTIFICATION FORM

PWS NAME: Spring Creek Water System

PWS ID #: 1049028

For Violation [describe violation]: TTHM's & HAAs

Occurring on [insert date]: Fourth calendar quarter, 12/31/09

The public water system indicated above hereby affirms that public notice has been provided to consumers in accordance with the delivery, content, and format requirements and deadlines in 40 CFR Subpart Q. A representative copy of the public notice is attached.

☐ Consultation with EPA (if required) on [insert date] _____

☒ Notice distributed by local newspaper serving the area on [insert date] 7/16/09

☒ Notice distributed by mail or hand delivery on [insert date] 7/16/09

☒ Content - required elements.

The Spring Creek Water System is currently in violation of the maximum contaminant level for total trihalomethanes (TTHMs) and haloacetic acids (HAAs) as set forth by the State (Part XII) of the Louisiana State Sanitary Code and the Federal Interim Drinking Water Regulations (DWR Part 141).

The United States Environmental Protection Agency (EPA) and the Louisiana Department of Health and Hospitals (LDHH) sets drinking water standards and requires the distribution of drinking water. When disinfection is used in the treatment of drinking water, disinfection byproducts can be naturally occurring, expected and therefore, water present in water in from chlorine-treated drinking water. EPA and LDHH set standards for controlling the levels of disinfection byproducts (DBPs) in drinking water, including trihalomethanes (TTHMs) and haloacetic acids (HAAs). Some people who drink water containing TTHMs in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

In December 1998, EPA set enforceable drinking water standards for TTHMs at 80 parts per billion (ppb) and for HAAs at 60 parts per billion (ppb) to reduce the risk of cancer and other adverse health effects. Compliance with the TTHMs and HAA standards for public water systems serving less than 15,000 individuals initially became effective and enforceable on January 1, 2004.

Compliance with the TTHMs and HAA standards are determined by calculating a running annual average (RAA) of quarterly TTHMs/HAAs sample results. Compliance calculations performed during the fourth calendar quarter of 2009 show that the system's TTHMs RAA was 88 ppb and HAA RAA was 202 ppb. Thus, the system is currently in violation of the TTHMs and HAA standards.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This is an emergency. If a bad smell, taste, or color is noticed, immediately, EPA and LDHH do not consider this violation to have any serious health effects on human health as a result of short-term exposure; however, continued long term exposure to TTHMs and HAA levels above the standard (e.g., 20 years of exposure) has the potential to have serious adverse effects on human health.

We have notified automatic flush valves on the system to aid in the flushing of the water mains. Should you have any questions, please call Tarc Chene, compliance at 977-0510. PWSID1049028

Stage 2 Disinfection Byproducts Rule (DBPR)

Stage 2 DBPR

General Requirements

To comply, systems must:

1. Conduct an Initial Distribution System Evaluation (IDSE)
2. Monitor for Stage 2 compliance
3. Determine compliance using locational running annual average (LRAA)
4. Identify TTHM and HAA5 exceedences

Stage 2 DBPR

IDSE: Goal

To identify monitoring locations, separate from Stage 1 locations, where high DBPs may occur.

Stage 2 DBPR

IDSE: Compliance Options

1. Very Small System (VSS) Waiver
2. 40/30 Certification
3. Standard Monitoring

Stage 2 DBPR

IDSE Option: Very Small System (VSS) Waiver

Applies to systems that:

1. Serve fewer than 500 people
2. Have collected Stage 1 samples

Stage 2 DBPR

IDSE Option: 40/30 Certification

Applies to systems that:

1. Have collected all required Stage 1 samples
2. Had no Stage 1 TTHM or HAA5 monitoring violations
3. Had no samples that exceeded 40 µg/L for TTHM and 30 µg/L for HAA5 during 8 consecutive calendar quarters beginning January 2004.

Stage 2 DBPR

IDSE Option: Standard Monitoring

Systems must:

1. Submit a standard monitoring plan (SMP)
2. Conduct 1 year* of standard monitoring during peak month
3. Submit an IDSE Report

* 1 year = 1, 4 or 6 monitoring periods

Stage 2 DBPR

Standard Monitoring: Standard Monitoring Plan (SMP)

Form 6: Standard Monitoring Plan			Page 1 of 6
I. GENERAL INFORMATION			
A. PWS Information*		B. Date Submitted*	
PWSID: _____			
PWS Name: _____			
PWS Address: _____			
City: _____ State: _____ Zip: _____			
Population Served: _____			
System Type:	Source Water Type:	Buying / Selling Relationships:	
<input type="checkbox"/> CWS	<input type="checkbox"/> Subpart H	<input type="checkbox"/> Consecutive System	
<input type="checkbox"/> NTNCWS	<input type="checkbox"/> Ground	<input type="checkbox"/> Wholesale System	
		<input type="checkbox"/> Neither	
C. PWS Operations			
Residual Disinfectant Type: <input type="checkbox"/> Chlorine <input type="checkbox"/> Chloramines <input type="checkbox"/> Other: _____			
Number of Disinfected Sources: _____ Surface _____ GWUDI _____ Ground _____ Purchased _____			
D. Contact Person*			
Name: _____			
Title: _____			
Phone #: _____ Fax #: _____			
E-mail: _____			
II. IDSE REQUIREMENTS*			
A. Number of Sites	B. Schedule	C. Standard Monitoring Frequency	
Total: _____			
Near Entry Point: _____	<input type="checkbox"/> Schedule 1	<input type="checkbox"/> During peak historical month (1 monitoring period)	
Avg Residence Time: _____	<input type="checkbox"/> Schedule 2		
High TTHM: _____	<input type="checkbox"/> Schedule 3	<input type="checkbox"/> Every 90 days (4 monitoring periods)	
High HAA5: _____	<input type="checkbox"/> Schedule 4	<input type="checkbox"/> Every 60 days (6 monitoring periods)	

IDSE Guidance Manual for the Final Stage 2 DBPR 7-29

January 2006

* All SMPs are past due

Important Items to include:

- PWS Name and ID
- Monitoring dates
- Monitoring locations with description
- Distribution system schematic

Stage 2 DBPR

Standard Monitoring: Conduction

Dual sample sets must be taken at each location and on each date indicated on the Standard Monitoring Plan.

Stage 2 DBPR

Standard Monitoring

Systems must obtain both TTHM AND HAA5 samples at EACH monitoring location for Stage 1 AND Stage 2

Stage 2 DBPR

Standard Monitoring: IDSE Report

Complete the IDSE Report once IDSE standard monitoring is complete

Stage 2 DBPR

Standard Monitoring : IDSE Report Components

System must:

1. Submit all Stage 1 TTHM & HAA5 results taken during the year of the IDSE
2. Explain any deviations from the approved SMP
3. Recommend & justify Stage 2 monitoring locations & periods
4. Submit a copy of the IDSE report (to be maintained for 10 years)

Stage 2 DBPR

Standard Monitoring : IDSE Report Components

Note if the following has changed from the approved SMP:

1. Distribution system schematic
2. Population
3. System type (i.e., GW, SW)

Stage 2 DBPR

Standard Monitoring: IDSE Report Deadlines

System Schedule (Population)	Deadline to Complete Standard Monitoring	IDSE Report Submission Deadline
1 ($\geq 100,000$)	Sept. 30, 2008	January 1, 2009
2 (50,000 – 99,999)	March 31, 2009	July 1, 2009
3 (10,000 - 49,999)	Sept. 30, 2009	January 1, 2010
4 ($< 10,000$)	March 31, 2010	July 1, 2010

Stage 2 DBPR

Standard Monitoring : IDSE Report Submission

Mail a copy of your IDSE
to:

1. EPA
2. DHH District Office

AND

Maintain original in your
records

Complete IDSE in CDX
(EPA's website)

AND

OR Mail a copy of your IDSE to:

1. EPA
2. DHH District Office

AND

Maintain original in your
records

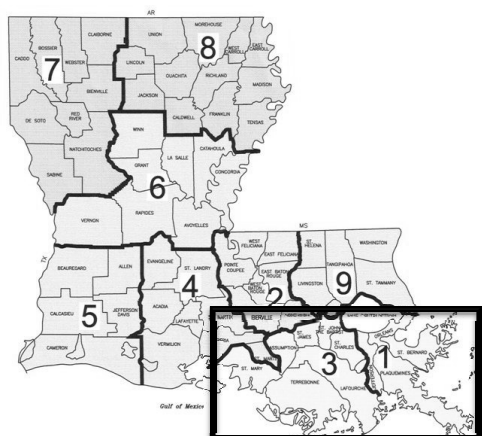
Stage 2 DBPR

Standard Monitoring : IDSE Report Submission - EPA

IMPC
P. O. Box 98
Dayton, OH 45401

Stage 2 DBPR

Standard Monitoring : IDSE Report Submission - LDHH



District 1 (Regions 1 & 3)
1010 Common St., Ste. 700
New Orleans, LA 70112

Stage 2 DBPR

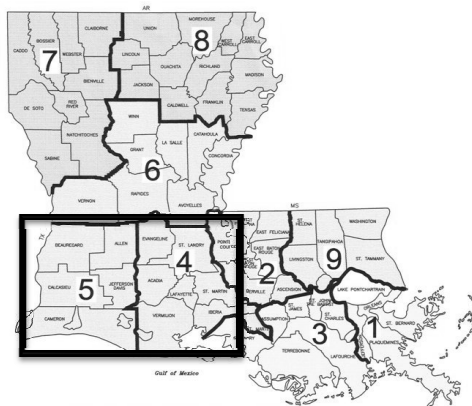
Standard Monitoring : IDSE Report Submission - LDHH



District 2 (Regions 2, 6 & 9)
7173A Florida Blvd.
Baton Rouge, LA 70806

Stage 2 DBPR

Standard Monitoring : IDSE Report Submission - LDHH



District 3 (Regions 4 & 5)
825 Kaliste Saloom, Brandywine 3, Ste. 100
Lafayette, LA 70508

Stage 2 DBPR

Standard Monitoring : IDSE Report Submission - LDHH

District 4 (Regions 7 & 8)
1525 Fairfield Ave., Rm. 569
Shreveport, LA 71101



Stage 2 DBPR

Standard Monitoring: Compliance Monitoring

System Schedule (Population)	Begin Stage 2 Compliance
1 ($\geq 100,000$)	April 1, 2012
2 (50,000 – 99,999)	October 1, 2012
3 (10,000 - 49,999)	October 1, 2013
4 ($< 10,000$)	October 1, 2013 (No Crypto Monitoring)
	October 1, 2014 (Crypto Monitoring Required)

Stage 2 DBPR

Important Points to Remember

1. Both Stage 1 and Stage 2 sample monitoring must done now
2. Stage 2 sampling locations must differ from Stage 1 sample locations
3. Both TTHM and HAA5 samples must be taken at each sample location

Questions

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